DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

P-603
Revision 16
Hamilton Sundstrand
23E

October 22, 2002

TYPE CERTIFICATE DATA SHEET NO. P-603

Type Certificate Holder: Hamilton Sundstrand
Division of United Technologies Corporation
Windsor Locks, Connecticut 06096

Propellers of models described herein conforming with this data sheet (which is part of type certificate no. 603) and other approved data on file with the Federal Aviation Administration meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Civil Air Regulations/Federal Aviation Regulations provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type: Constant speed; hydraulic (See NOTES 3 and 4)

Engine Shaft: SAE No. 50, SAE No. 51, SAE No. 40, or X. (X indicates special shaft sizes for foreign engines are eligible.)

Hub material: Steel
Blade material: Aluminum alloy
Number of blades: Three
Hubs eligible: 23E50, 23E51, 23E40, 23EX (See Note 1.)

Blade Eligible (See Note 2)	Maximum Continuous HP	Maximum Continuous RPM	Takeoff HP	Takeoff RPM	Diameter Limits (See Note 2)	Hub and Blade Weight (Max Diameter)	NOTES
6139-0 to 6139-18	1100	1700	1206	1870	11'6-1/4" - 10'1/4" (-0 to -18)	384 lbs.	6
6140 is the left-hand version of 6139.							5
6153-0 to 6153-30	1255	1790	1380	1970	13'1/4" - 10' 6-1/4" (-0 to -30) Telescoped to 10' 3-1/4" (-33T)	400 lbs.	6, 8
6153-12 to 6153-30	1500	1350	1700	1410	12' 1/4" - 10' 6-1/4" (-12 to -30)	398 lbs.	6, 8
6154 is the left-hand version of 6153.							5, 8
6159-0 to 6159-36	1500	1435	1850	1535	14' 1/4" - 11' 1/4" (-0 to -36)	461 lbs.	6
6160 is the left-hand version of 6159.							5
6179-0 to 6179-24	1164	2100	1281	2310	10' 6-1/4" - 8'6-1/4" (-0 to -24)	353 lbs.	6
6180 is the left-hand version of 6179.							5
6229-0 to 6229-30	1255	1790	1380	1970	13' 1/4" - 10' 6-1/4" (-0 to -30) Telescoped to 10'3-1/4" (-33T)	400 lbs.	6, 8

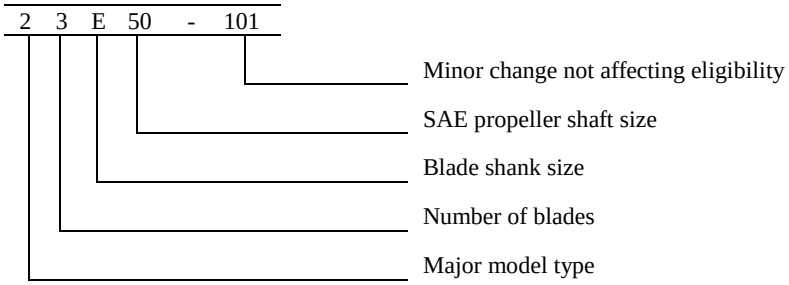
Blade Eligible (See Note 2)	Maximum Continuous HP	Maximum Continuous RPM	Takeoff HP	Takeoff RPM	Diameter Limits (See Note 2)	Hub and Blade Weight (Max Diameter)	NOTES
6229-12 to 6229-24	1500	1350	1700	1410	12' 1/4" - 11' 1/4" (-12 to -24)	398 lbs.	6, 8
6230 is the left-hand version of 6229.							5, 8
6243-0 to 6243-42	1350	1295	1600	1350	15' 1/4" - 11' 6-1/4" (-0 to -42)	482 lbs.	6
6244 is the left-hand version of 6243.							5
6247-0 to 6247-24	1164	2100	1281	2310	10' 6-1/4" - 8' 6-1/4" (-0 to -24)	353 lbs.	6
6248 is the left-hand version of 6247.							5
6261-0 to 6261-18	1255	1790	1380	1970	11' 6-1/4" - 10' 1/4" (-0 to –18)	384 lbs.	6
6262 is the left-hand version of 6261.							5
6277-0 to 6277-12	1050	1434	1200	1519	11’ 6-1/4” – 10’ 6-1/4” (-0 to –12)	446 lbs.	6
6277-12 to 6277-24	1625	1434	2000	1519	10’ 6-1/4” – 9’ 6-1/4” (-12 to –24)	438 lbs.	6
6278 is the left-hand version of 6277.							5
6339-0 to 6339-18	1095	1700	1206	1870	11’ 6-1/4” – 10’ ¼” (-0 to –18)	384 lbs.	6
6340 is the left-hand version of 6339.							5
6353-0 to 6353-30	1255	1790	1380	1970	13- ¼” – 10’ 6-1/4” (-0 to –30) Telescoped to 10- 3-1/4” (-33T)	400 lbs.	6, 8
6353-12 to 6353-30	1500	1350	1700	1410	12- ¼” – 10’ 6-1/4” (-12 to –30)	398 lbs.	6, 8
6353-18 to 6353-30	1275	1435	1525	1575	11’ 6-1/4” – 10’6-1/4” (-18 to –30)	397 lbs.	6, 8
6354 is te left-hand version of 6353.							5, 8
6359-0 to 6359-36	1500	1435	1850	1535	14’ ¼” – 11’ ¼” (-0 to –36)	461 lbs.	6
6360 is the left-hand version of 6359.							5
6379-0 to 6379-24	1164	2100	1281	2310	10’ 6-1/4” – 8’ 6-1/4” (-0 to –24)	353 lbs.	6
6380 is te left-hand version of 6379.							5
6429-0 to 6429-30	1255	1790	1380	1970	13’ ¼” – 10’ 6-1/4” (-0 to –30) Telescoped to 10’ 3-1/4” (-33T)	400 lbs.	6, 8
6429-12 to 6429-30	1500	1350	1700	1410	12’ ¼” – 10’ 6-1/4” (-12 to –30)	398 lbs.	6, 8
6430 is the left-hand version of 6429.							5, 8

Blade Eligible (See Note 2)	Maximum Continuous HP	Maximum Continuous RPM	Takeoff HP	Takeoff RPM	Diameter Limits (See Note 2)	Hub and Blade Weight (Max Diameter)	NOTES
6443-0 to 6443-42	1350	1295	1600	1350	15' ¼" – 11' 6-1/4" (-0 to –42)	482 lbs.	6
6444 is the left-hand version of 6443.							5
6447-0 to 6447-24	1164	2100	1281	2310	10' 6-1/4" – 8' 6-1/4" (-0 to –24)	353 lbs.	6
6448 is the left-hand version of 6447.							5
6461-0 to 6461-18	1255	1790	1380	1970	11' 6-1/4" – 10' ¼' (-0 to –18)	384 lbs.	6
6462 is the left-hand version of 6461.							5
6477-0 to 6477-12	1200	1465	1350	1575	11' 6-1/4" - 10' 6-1/4" (-0 to –12)	446 lbs.	6
6477-12 to 6477-24	1625	1434	2000	1550	10' 6-1/4" – 9'6-1/4" (-12 to –24)	438 lbs.	6
6478 is the left-hand version of 6477.							5
6491-0 to 6491-36	1750	1275	2100	1400	15'1/4" – 12' ¼" (-0 to –36)	493 lbs.	6
6491-48 to 6491-54	1600	1350	2000	1520	11' ¼" – 10' 6-1/4" (-48 to –54)	461 lbs.	6
6492 is the left-hand version of 6491.							5
6501-0 to 6501-24	1600	1275	2000	1350	13'1/4" – 11' ¼" (-0 to –24)	468 lbs.	6
6502 is the left-hand version of 6501.							
6507-0 to 6507-24	1600 or 1300	1275 or 1300	2000	1350	13' ¼" – 11' ¼" (-0 to –24)	468 lbs.	6
6508 is the left-hand version of 6507.							5
6519-0 to 6519-30	1275	1465	1425	1575	13' ¼" – 10' 6-1/4" (-0 to –30)	455 lbs.	6
6520 is the left-hand version of 6519.							5
6549-0 to 6549-30	1275	1465	1425	1575	13' ¼" – 10' 6-1/4" (-0 to –30)	455 lbs.	6
6550 is the left-hand version of 6549.							5
6565-12 to 6565-30	1255	1790	1380	1970	12' ¼" – 10' 6-1/4" (-12 to –30)	402 lbs.	6
6566 is the left-hand version of 6565.							5
6615-0 to 6615-18	1275	1435	1525	1575	11' 6-1/4" – 10' ¼" (-0 to –18)	431 lbs.	6
6616 is the left-hand verion of 6615.							5
6801-0 to 6801-36	1750	1275	2100	1400	15'1/4" – 12'1/4" (-0 to –36)	493 lbs.	6
6801-48 to 6801-60	1700	1465	2000	1520	11' ¼" – 10' ¼" -48 to –60)	461 lbs.	6
6802 is the left-hand version of 6801.							5

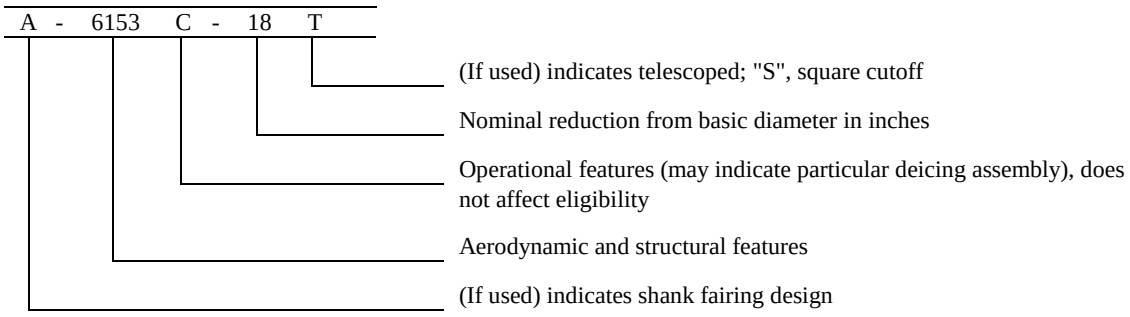
Blade Eligible (See Note 2)	Maximum Continuous HP	Maximum Continuous RPM	Takeoff HP	Takeoff RPM	Diameter Limits (See Note 2)	Hub and Blade Weight (Max Diameter)	NOTES
6937-0 to 6937-30	1275	1465	1425	1575	13’ ¼” – 10’ 6-1/4” (-0 to –30)	455 lbs.	6
6938 is the left-hand version of 6937.							5
6955-0 to 6955-30	1275	1465	1425	1575	13’ ¼” – 10’ 6-1/4” (-0 to –30)	455 lbs.	6
6956 is the left-hand version of 6955.							5
6965-0 to 6965-24	1600	1275	2000	1350	13’ ¼” – 11’-1/4” (-0 to –24)	468 lbs.	6
6966 is the left-hand version of 6965.							5
7147-0 to 7147-24	1600	1275	2000	1350	13’ ¼” – 11’ ¼” (-0 to –24)	468 lbs.	6
7148 is the left-hand version of 7147.							5
7149-0 to 7149-12	1200	1465	1350	1575	11’ 6-1/4” – 10’6-1/4” (-0 to –12)	446 lbs.	6
7149-12 to 7149-24	1625	1434	2000	1550	10’ 6-1/4” – 9’6-1/4” (-12 to –24)	438 lbs.	6
7150 is the left-hand version of 7149.							5
7203-0 to 7203-24	1600 or 1300	1275 1300	2000	1350	13’1/4”-11’1/4” (-0 to -24)	468 lbs.	6
7204 is the left-hand version of 7203							5

Certification basis Type Certificate No. 603, issued September 29, 1937, reissued April 18, 1940.
Production basis Production Certificate No. 14

NOTE 1. Hub Model Designation



NOTE 2. Blade Model Designation



The blade model designation suffixed with "T" indicates a diameter reduction by telescoping. Blade models with square cutoffs in accordance with Hamilton Sundstrand blade drawings are suffixed with "S." Telescoped blades and blades with a square cut-off are eligible at the same ratings and diameter limits as blades with standard cut-off. Diameter limits shown are nominal diameters of the assembled propeller and do not include the ± 1/ 8" manufacturing tolerance permissible for propellers with basic diameter less than 14 feet or ± 1/ 4" permissible for propellers with basic diameter 14 feet or larger.

NOTE 3. Pitch Control. Eligible with Hamilton Sundstrand constant speed governor only.

NOTE 4. Feathering. Eligible with full feathering control installed in accordance with the propeller manufacturer's instructions.

NOTE 5. Left-hand Models. The left hand version of an approved model propeller is eligible at the same rating and diameter limitations as listed for the right hand model.

NOTE 6. Interchangeable Blades. Blades with an "S" or "T" suffix (see NOTE 2) are not interchangeable aerodynamically or vibrationwise with each other or with blades having normal round cutoffs. Only blades listed in the same group of the following groups are aerodynamically similar. Only blades listed under the same type in any one group are structurally similar. A higher type number implies a higher strength. This is due to differences in alloys and in cold working of the blade surface.

Type 1 includes standard alloy nonsurface treated blades: Type 2, hard alloy nonsurface treated blades; Type 3, hard alloy blades with cold worked shanks; Type 4, hard alloy blades with cold worked shanks and shot peened surfaces.

The following defines the degree to which these blades may be used interchangeably in the same diameter without a flight performance test and without a vibration survey:

Type 2 blades may replace Type 1 blades in the same group, but not vice-versa.
Type 3 blades may replace either Type 1 or Type 2 blades in the same group, but not vice-versa.
Type 4 blades may replace either Type 1, Type 2, or Type 3 blades in the same group, but not vice-versa.

Reference should always be made to the ratings of the blades, and blades with different model numbers cannot be incorporated in the same propeller unless the aircraft certification specifically permits this.

	Type 1	Type 2	Type 3	Type 4
Group (a)	6139, 6339			
Group (b)	6153, 6353	6229, 6429		
Group (c)	6159, 6359			
Group (d)	6179, 6379	6247, 6447		
Group (e)	6243	6443		
Group (f)	6261, 6461			
Group (g)***	6277, 6477			
Group (h)**	6507	6501	6965	
Group (i)		6491		6801
Group (j)(*)	6519	6549	6937	

*6955 is identical to 6519 except that 6955 has cold worked shanks. 6955 may relace 6519 but not vice-versa. Also 6937 is identical to 6955 except that 6937 is a hard alloy blade while 6955 is standard alloy (both have cold worked shanks.) Therefore, 6937 may replace 6955 but not vice-versa. 6549 and 6955 are not structurally interchangeable.

**7147 is identical to 6507 except that 7147 has a cold worked shank and no chafing ring. 7147 may replace 6507 but not vice-versa. Also, 6965 is identical to 7147 except that 6955 is a hard alloy blade while 7147 is standard alloy (both have cold worked shanks). Therefore, 6965 may replace 7147 but not vice-versa. 6501 and 7147 are not structurally interchangeable.

Also:

**7203 is identical to 6507 except that 7203 has a cold rolled shank and shot-peened inboard airfoil section. 7203 may replace 6507 but not vice-versa.

***7149 is identical to 6477 and 6277 except that 7149 has a cold rolled shank and no chafing ring. 7149 may replace 6477 and 6277 but not vice-versa.

NOTE 7. Accessories.

(a) Propeller Deicing
  (1) Eligible with Hamilton Sundstrand deicing slinger ring assemblies only.
  (2) Eligible with Goodrich No. 3/572 propeller deicer fluid feed strips.*
  (3) Eligible with Goodrich No. 36889 propeller deicer fluid feed strips.*
  *When installed in accordance with Hamilton Sundstrand instructions regarding the cement sequence for adhering rubber accessories to aluminum alloy blades.

(b) Propeller Spinner
  (1) Eligible with spinner supplied by Hamilton Sundstrand.

NOTE 8. Shank Fairings. A letter and a dash prefix included in the blade model designation (as A-6153) indicates that the blade assembly includes molded shank fairings. Fairings are eligible only on those model blades specifically designated. The following procedure should be followed when determining if blades with molded shank fairings are eligible on a model aircraft.

(a) Refer to the pertinent propeller specification and determine whether an assembly of the blade model in question is eligible to incorporate a molded shank fairing.
(b) Refer to the pertinent aircraft specification and determine whether the same model blade with incorporated molded shank fairing is eligible in the propellers of that model aircraft.

NOTE 9. Special Limits. Not applicable.

NOTE 10. Special Notes. The word "eligible" as used herein does not signify approval as part of this type certificate. "Eligible" accessories and pitch controls must be approved as part of the aircraft type certificate upon compliance with the applicable aircraft airworthiness requirements.

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